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PATENT APPLICATION  
10/595,159

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Georg Bachmaier et al.
Serial No.:	10/595,159
Date Filed:	February 20, 2007
Group Art Unit:	3753
Confirmation No.:	3530
Examiner:	Rost, Andrew J.
Title:	<b>METERING DEVICE</b>

**MAIL STOP – AF**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**PRE-APPEAL REQUEST FOR REVIEW**

In response to the Final Office Action mailed November 12, 2010 and Advisory Action mailed January 21, 2011, Applicants respectfully submit the following remarks indicating the clear factual and legal error of the Examiner, and respectfully request that the Examiner's rejections be withdrawn.

**Status of the Claims**

In the Final Office Action, the Examiner rejected Claims 1-4, 6-18, and 20 as obvious in view of prior art combinations, and held that dependent Claims 5 and 19 recite allowable subject matter. Applicants filed a Response to Final Office Action on January 5, 2011 amending the claims to correct clerical errors, and arguing that the Examiner's obviousness rejections are legally improper. In response, the Examiner mailed an Advisory Action on January 21, 2011, maintaining the obviousness rejections of Claims 1-4, 6-18, and 20.

**The Advisory Action misstates Applicants' arguments.**

In the Advisory Action, the Examiner argues states that "Applicant argues [in the Response to Final Office Action] that there is no reason to modify the *Benson* reference in view of the *Trachte* reference." This is not correct. Applicants did not argue that there is *no reason* to modify *Benson* in view of *Trachte*. Rather, Applicants argued that it is legally improper to modify *Benson* in view of *Trachte* based on two established principles set forth in the M.P.E.P.:

(1) It is improper to combine references where the references **teach away** from their combination, and

(2) It is improper to modify or combine references where the proposed modification or combination would **change the principle of operation** of the prior art being modified.

In the Advisory Action, the Examiner does not address the first rationale (teaching away), and applies the second rationale (principle of operation) incorrectly, as discussed below. Thus, Applicants respectfully submit that the standing rejections are based on clear legal error, and accordingly requests that the rejections be withdrawn.

**(1) *Benson* clearly teaches away from the proposed modification in view of *Trachte*.**

M.P.E.P. 2145(X)(D)(2) instructs that "It is improper to combine references where the references **teach away** from their combination. (citing *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).)" MPEP 2141.02 instructs that in determining whether a prior art references teaches away, the "prior art reference must be considered **in its entirety**,

i.e., as a whole, **including portions that would lead away** from the claimed invention.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983).

*Benson* teaches a fuel injector that meters fuel using a multi-stroke plunger-based hydraulic pumping technique analogous to that of a pump. (col. 3, line 74 to col. 4, line 19). When a first voltage is applied to the piezo stack 30, the plunger 38 moves downward, which causes fuel to be drawn from a fuel line 16 into an upper fuel chamber 36. (col. 3, lines 56-59). When the voltage applied to the piezo stack 30 is removed, the plunger is pulled upwardly, which forces fluid in the upper fuel chamber 36 into a lower fuel reservoir 46 through an inlet check valve 42. (col. 3, lines 59-62). Then, when a second voltage is applied to the piezo stack 30, the plunger 38 again moves downward, thus pressurizing the fuel in the lower fuel reservoir 46 until the pressure is sufficient to open the injector poppet valve 50 allowing the fuel to expel through the injector nozzle. (col. 3, lines 64-69).

Thus, *Benson* provide a system for metering fuel by controlling the injection value using a **hydraulic piston-based pumping technique**, as opposed to controlling the injection valve **mechanically**, as in *Trachte* and Applicants’ system. Thus, *Benson*’s fundamental operation *inherently* teaches away from using a mechanically control valve. *Benson* also **explicitly teaches away** from using a mechanically control valve, by discussing the advantages of his hydraulic piston-based pumping system as compared to a mechanically-controlled valve. For example, *Benson* teaches:

Yet another object of this invention is the provision of a fuel injection system that has a significantly greater range of injector displacement per stroke that can be precisely and rapidly controlled over the complete range of engine operation than can a mechanically driven system.

Thus, *Benson* both inherently and explicitly teaches away using a mechanical-controlled valve, such as that taught by *Trachte*. As discussed above, the M.P.E.P. is clear that the prior art cannot be modified or combined in view of such teaching away. Therefore, Applicants submit that the proposed modification of *Benson* based on *Trachte* is legally improper. Again, the Examiner did not address this issue at all in the Advisory Action.

**(2) The Examiner's proposed modification of *Benson* based on *Trachte* would fundamentally change the whole principle of operation of *Benson's* system.**

M.P.E.P. 2143.01(VI) instructs that "If the proposed modification or combination of the prior art would **change the principle of operation** of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."

Here, the proposed modification of *Benson* based on *Trachte* would fundamentally change the whole principle of operation of *Benson's* system. As discussed above, *Benson* provide a system for metering fuel by controlling the injection value using a hydraulic piston-based pumping technique and check valve 42, as opposed to controlling the injection valve mechanically. In direct contrast, *Trachte* uses a mechanically-controlled valve in which a cap 29 is mechanically coupled to a transmission bolt 31, which acts on an end 152 of a valve needle 15 to open the valve. Incorporating the mechanically-coupled cap 29/bolt 31/needle 15 into the piston-based pump system of *Benson* -- assuming this would even be possible, which Applicants do not concede -- would clearly change the fundamental principle of operation of *Benson's* system.

The Examiner attempted to address this issue in the Advisory Action, by arguing that "the modified *Benson* reference would still be able to function as a fuel injector since the fuel entering the injector is already under pressure ..." Applicants respectfully submit that this is not the proper legal test. The test is not whether the modified invention *could still function*. The test is whether the modification ***changes the principle of operation***. Here, the principle of operation of non-modified *Benson* is through hydraulic (non-mechanical) piston-based pumping using a check valve, whereas the principle of operation of the proposed modified *Benson* is through mechanical actuation of a valve. Regardless of whether the modified *Benson* fuel injector *could still function as a fuel injector*, the principal of operation of that fuel injector is clearly changed in a substantial manner. Thus, according to the proper legal test — whether the proposed modification would change the principle of operation of *Benson* (not whether the proposed modification would result in a working device) — the proposed modification of *Benson* is legally improper, and the rejections based on such proposed modification should be withdrawn.

Thus, for at least the various reasons set forth above, Applicants respectfully submit that the Examiner's rejections are based on clear legal error, and accordingly, the rejections should be withdrawn and all claims allowed.

### CONCLUSION

Applicants submit these Arguments in Support of Pre-Appeal Brief Request for Review along with a Notice of Appeal. Applicants authorize the Commissioner to charge Deposit Account No. 50-2148 in the amount of \$540.00 for the Notice of Appeal fee. If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512-457-2030.

Respectfully submitted,  
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Attorney for Applicants



Eric M Grabski  
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Date: February 7, 2011

SEND CORRESPONDENCE TO:

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